

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 18:38:40 ON 01 APR 2002

L1 35237 S ORGAN CULTURE  
L2 297 S EMBRYO? TRANSPLANTATION  
L3 2 S L1 AND L2  
L4 8 S L1 AND BLASTULA  
L5 8 DUP REM L4 (0 DUPLICATES REMOVED)  
L6 2 S L4 AND ECTODERM  
L7 0 S L4 AND TGF-BETA  
L8 435 S L1 AND TGF-BETA  
L9 141 S L8 AND EMBRYO?  
L10 11 S L9 AND ACTIVIN  
L11 5 DUP REM L10 (6 DUPLICATES REMOVED)  
L12 2 S L8 AND RETINOID  
L13 5173 S ASASHIMA M?/AU OR ARIIZUMI T?/AU OR CHAN T?/AU  
L14 9 S L1 AND L13  
L15 8 DUP REM L14 (1 DUPLICATE REMOVED)

L Number	Hits	Search Text	DB	Time stamp
1	3827	organ with culture\$	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:02
7	547	(organ with culture\$) same transplant\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:15
13	633399	@riad<19990129	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 13:16
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61	136	(organ with culture\$) and amphibian	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:24
67	72	((organ with culture\$) and amphibian) and @riad<19990129	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:23
73	3	(organ with culture\$) same amphibian	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:32
79	2	(organ with culture\$) same xenopus	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:32
85	4	(organ with culture\$) and blastula	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 14:37
91	41	(organ with culture\$) and ectoderm	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 15:31

97	66	(organ with culture\$) and activin	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/01 15:31
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## ARTICLE

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# vertebrate

also called CRANIATA, any animal of the subphylum Vertebrata, the predominant subphylum of the phylum Chordata. They have backbones, from which they derive their name.

The **vertebrates** are also characterized by a muscular system consisting primarily of bilaterally paired masses and a central nervous system partly enclosed within the backbone.

The subphylum is one of the best known of all groups of animals. Its members include the classes Agnatha, Chondrichthyes, and Osteichthyes (all fishes); Amphibia (amphibians); Reptilia (reptiles); Aves (birds); and Mammalia (mammals).

## General features

Although the vertebral column is perhaps the most obvious **vertebrate** feature, it was not present in the first **vertebrates**, which probably had only a notochord. The **vertebrate** has a distinct head, with a differentiated tubular brain and three pairs of sense organs (nasal, optic, and otic). The body is divided into trunk and tail regions. The presence of pharyngeal slits with gills indicates a relatively high metabolic rate. A well-developed notochord enclosed in perichordal connective tissue, with a tubular spinal cord in a connective tissue canal above it, is flanked by a number of segmented muscle masses. A sensory ganglion develops on the dorsal root of the spinal nerve, and segmental autonomic ganglia grow below the notochord. The trunk region is filled with a large, bilateral body cavity (coelom) with contained viscera, and this coelom extends anteriorly into the visceral arches.

## ON THIS TOPIC

- ▶ SUMMARY
- ▶ ARTICLE
- ▶ INDEX ENTRY
- ▶ IMAGES
- ▶ EQUATION FORMULAE
- ▶ TABLES
- ▶ INTERNET LINKS

## RELATED TOPICS

## more general

- chordate

## more specific

*nontaxonomic grouping*

- fish

- gnathostome

- tetrapod

*fossil class*

- placoderm

- spiny shark

*class*

- Actinopterygii

- Agnatha

- amphibian

- bird

- bony fish

- chimaera

- chondrichthian

- mammal

- reptile

- Sarcopterygii

*ear*

- lagena

*other*

- lymphatic vessel

- in vertebrate

- vertebrate blood

- cell

- vertebrate

- chemoreception

- vertebrate

- digestive system

- vertebrate

- endocrine system

- vertebrate

- excretory system

- vertebrate eye

- vertebrate

- reproductive

- system

A digestive system consists of an esophagus extending from the pharynx to the stomach and a gut from the stomach to the anus. A distinct heart, anteroventral to the liver, is enclosed in a pericardial sac. A basic pattern of closed circulatory vessels is largely preserved in most living forms. Unique, bilateral kidneys lie retroperitoneally (dorsal to the main body cavity) and serve blood maintenance and excretory functions. Reproductive organs are formed from tissue adjacent to the kidneys; this original close association is attested by the tubular connections seen in males of living forms. The ducts of the excretory organs open through the body wall into a cloacal chamber, as does the anus of the digestive tract. Reproductive cells are shed through nearby abdominal pores or through special ducts. A muscular tail continues the axial musculature of the trunk.

Approximately 45,000 living species constitute the **vertebrates**. Species of several classes are found from the high Arctic or Antarctic to the tropics around the Earth; they are missing only from interior Antarctica and Greenland and from the North Polar ice pack. In size, **vertebrates** range from minute fishes to elephants and whales (of up to 100 tons), the largest animals ever to have existed. **Vertebrates** are adapted to life underground, on the surface, and in the air. They feed upon plants, invertebrate animals, and one another. **Vertebrate** faunas are important to humans for food and recreation.

NEXT ►

## TABLE OF CONTENTS

## vertebrate

- ► **Introduction**
- ► **General features**
- **Natural history**
  - [The cyclostomes](#)
  - [The chondrichthyes](#)
  - [The teleostomes](#)
  - [The tetrapods](#)
- **Form and function**
  - [External features](#)

- vertebrate testis

- Internal features
  - The skeletal system
  - Tissues and muscles
  - Nervous system and organs of sensation
  - The digestive system
  - The excretory system
  - Respiration and gas exchange
  - The circulatory system
  - The endocrine system
- Evolution and paleontology
- Classification
  - Annotated classification
  - Critical appraisal
- Bibliography

**INTERNET LINKS**

Search for related Internet links that use the term "vertebrate".

**INDEX ENTRY**

Information about this topic in other articles

**vertebrate (chordate subphylum)**

- major reference
- annotated classifications
  - in Classification  
from animal
  - in Evolution and paleontology  
from vertebrate
- behaviour
  - in From bryozoans to humans  
from social behaviour in animals
  - in Diversity of behavioral activity  
from animal behaviour
  - in Nervous system and behaviour  
from animal behaviour
- description
- evolution
  - in Animal life  
from community ecology
  - in Embryonic development and vestiges  
from evolution
- paleogeography
- paleontological record
  - Devonian Period
  - Mesozoic Era
  - Oligocene Epoch
  - Paleozoic Era
  - Permian Period

- Romer's study
- Triassic Period
- physiology
  - circulatory system
    - in blood
    - in circulation
    - in The vertebrate circulatory system from circulation
    - comparative patterns
  - developmental systems
  - ear
  - embryonic digestive system
  - endocrine systems
  - excretion
    - in Vertebrates from excretion
    - in Vertebrate excretory systems from excretion
  - hormones
  - immune system
    - in The immune response from human disease
    - in Immune capacity among vertebrates from immunity
  - integumentary systems
    - in integument
    - in The vertebrate integumentary system from integument
  - metabolism
  - muscle systems
  - nervous systems
  - reproduction and reproductive systems
    - in Reproduction of organisms from reproduction
    - in Reproductive systems of vertebrates from reproductive system, animal
  - respiration
  - sensory reception
    - in Reception of external mechanical stimuli from mechanoreception
    - in Thermoreceptors in vertebrates from thermoreception
    - in The optical properties of eyes from photoreception
    - chemoreception
  - skeletal systems
    - in skeleton
    - in joint

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